Physical Principles in Welding Processes I

WELDENG 7001

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Study of the application of physical principles in engineering of arc welding processes and equipment.

Prerequisites and Co-requisites:
Prereq: Grad standing, or permission of instructor.

Course Goals / Objectives:
- Understand how the physical laws affect the observed phenomenon in welding processes
- Through an understanding of the physical laws and the observed welding phenomenon, be in a better position to predict the effects of welding variable changes on welding process behavior
- Understand the design of electrical power supplies and systems for arc welding
- Predict joint fill rates and nugget areas for typical arc welding processes
- Design experiments and analyze results to develop welding process procedure specifications

Course Topics:
- Electrical energy sources, power distribution
- Arc electrical circuit characteristics
- Arc heat generation
- Electrical welding power supply designs
- GTAW, PAW, GMAW, FCAW, SAW

Designation:
Elective